AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A flow-through electrochemical cell assembly comprising

(a) a perimeter wall defining a sample flow channel including an inlet and an outlet,

(b) a sample inlet line in fluid communication with said sample flow channel inlet,

(c) a sample outlet line providing fluid communication between said sample flow channel outlet and a remote reference electrode, and

(d) a disposable working electrode structure comprising an electrically conductive and electrochemically active working electrode region bound as a layer, directly or indirectly, to an electrically insulating substrate surface, said substrate surface being in fluid-sealing relationship with said sample flow channel, at least a portion of the substrate surface being exposed to the sample flow channel and said working electrode region being in fluid communication with said sample flow channel, said working electrode structure being [[~~readily~~]] removable from said electrochemical cell assembly.

2. (Original) The flow-through electrochemical cell assembly of Claim 1 in which said working electrode structure further comprises an electrically conductive contact region bound as a layer, directly or indirectly, to said substrate surface and an electrically conductive lead providing an electric path between said working electrode region and said contact region, said contact region being bound to said substrate surface out of fluid contact with said sample flow channel.

3. (Currently amended) The flow-through electrochemical cell assembly of Claim [[~~1~~]] 2 further comprising an electrically conductive connection pin having a first end in removable contact with said contact region and a second end adapted for electrical connection to a power source.

4. (Original) The flow-through electrochemical cell assembly of Claim 1 in which said perimeter wall comprises a gasket forming a fluid-tight seal at the periphery of said sample flow channel.

5. (Original) The flow-through electrochemical cell assembly of Claim 1 in which said working electrode region is exposed directly to said sample flow channel, without an intermediate layer.

6. (Original) The flow-through electrochemical cell assembly of Claims 1 or 2 in which said working electrode region is between about 100 Å and 10,000 Å thick.

7. (Original) The flow-through electrochemical cell assembly of Claim 1 in which said working electrode region is formed by vapor deposition of electrically conductive and electrochemically active material, directly or indirectly, onto said substrate

8. (Original) The flow-through electrochemical cell assembly of Claim 1 in which said substrate comprises an organic polymer.

9. (Original) The flow-through electrochemical cell assembly of Claim 8 in which said organic polymer is selected from the group consisting of polyester, polycarbonate, polyolefin, polyimide and polyetherimide.

10. (Original) The flow-through electrochemical cell assembly of Claim 1 in which said working electrode region comprises a metal or a carbonaceous material.

11. (Original) The flow-through electrochemical cell assembly of Claim 1 in which said working electrode region is bound through an intermediate adhesion layer to said substrate.

12. (Original) The flow-through electrochemical cell assembly of Claim 11 in which said adhesion layer is formed by vapor deposition onto said substrate.

13. (Original) The flow-through electrochemical cell assembly of Claim 11 in which said adhesion layer is between about 50 Å and 5000 Å thick.

14. (Original) The flow-through electrochemical cell assembly of Claim 11 in which said adhesion layer is formed of a material selected from the group consisting of titanium, tungsten, chromium, and alloys thereof.

15. (Original) The flow-through electrochemical cell of Claim 1 in which said sample flow inlet is in fluid communication with a liquid chromatographic separator or flow injection analysis apparatus.

16. (Withdrawn) A method for making a disposable working electrode structure and sample flow channel for use in an electrochemical cell assembly, said method comprising:

(a) vapor depositing electrically conductive and electrochemically active material, directly or indirectly, onto an organic polymer substrate through a mask to form a pattern of a working electrode region, and

(b) forming a fluid seal between said working electrode region and a perimeter wall to define a fluid sample flow channel with said working electrode region in direct fluid contact with said fluid sample flow channel.

17. (Withdrawn) The method of Claim 16 in which said vapor deposition is through said mask which mask forms a pattern of an electrically conductive lead interconnecting said working electrode and an electrically conductive contact region forming said disposable working electrode structure.

18. (Withdrawn) The method of Claim 16 further comprising, before step (a), vapor depositing an adhesion layer onto said organic polymer substrate through a mask, wherein step (a) is performed by vapor depositing said electrically conductive material and electrochemically active onto said adhesion layer.

19. (Withdrawn) The method of Claim 18 in which said adhesion layer is formed of a material selected from the group consisting of titanium, tungsten, chromium, and alloys thereof.

20. (Withdrawn) The method of Claim 16 in which said organic polymer is selected from the group consisting of polyester, polycarbonate, polyolefin, polyimide and polyetherimide.

21. (New) The flow-through electrochemical cell assembly of Claim 1 wherein the active working electrode region has a diameter of about 0.1 to 3 mm.

22. (New) The flow-through electrochemical cell assembly of Claim 1 wherein the active working electrode region has a diameter of about 0.5 to 2 mm.

23. (New) The flow-through electrochemical cell assembly of Claim 1 wherein the active working electrode region has a diameter of about 1 mm.

24. (New) A flow-through electrochemical cell assembly comprising:

a working electrode structure including

an electrically insulating substrate, and

a working electrode disposed on a portion of the electrically insulating substrate;

a sealing member positioned to define a sample flow channel bordered on at least one side by a region of the electrically insulating substrate selected such that the working electrode is

positioned at least partially within the sample flow channel, the sample flow channel having an inlet and an outlet;

a reference electrode in fluid communication with the sample flow channel; and

a counter electrode in fluid communication with the sample flow channel.

25. (New) A flow-through electrochemical cell assembly according to claim 24, further comprising:

a clamp compressing the sealing member between the working electrode structure and the counter electrode, such that the counter electrode defines at least one side of the sample flow channel.

26. (New) A flow-through electrochemical cell assembly according to claim 25 wherein the clamp is releasable to allow for removal of the working electrode structure from the flow-through electrochemical cell assembly.

27. (New) A flow-through electrochemical cell assembly according to claim 24, wherein the reference electrode is equipped with a salt bridge.

28. (New) A flow-through electrochemical cell assembly according to claim 24, the reference electrode comprising a pH/Ag/AgCl electrode.

29. (New) A flow-through electrochemical cell assembly according to claim 24, wherein the working electrode is microfabricated.

30. (New) A flow-through electrochemical cell assembly according to claim 24 wherein the working electrode comprises an electrically conductive material and an electrochemically active material.

31. (New) A flow-through electrochemical cell assembly according to claim 24 wherein the working electrode has a diameter of about 0.1 to 3 mm.

32. (New) A flow-through electrochemical cell assembly according to claim 24 wherein the working electrode is affixed to the insulating substrate with an adhesion material.

33. (New) A flow-through electrochemical cell assembly comprising:

a reference electrode including a wall having an inlet and outlet spaced therefrom;

a sealing member mounted to said wall and defining a sample flow channel fluidly coupling said inlet and said outlet; and

a working electrode structure including an electrically insulating substrate and a working electrode disposed along a portion of said electrically insulating substrate;

wherein said sample flow channel is capped by said working electrode structure such that said working electrode is in fluid communication with said sample flow channel.